EE/CprE/SE 491 WEEKLY REPORT 12

04/06/2020 – 04/19/2020

Group number: ***sdmay20-36***

Project title: ***Open-Source Prototyping of 5G Wireless Systems for Unmanned Ground and Aerial Vehicles***

Client &/Advisor: ***Hongwei Zhang***

Team Members/Role:

Andrew Eschweiler – *Algorithm Dev.*

William Byers – *Algorithm Dev.*

Nathan Whitcome – *OAI Integration Dev.*

Samuel Stanek – *OAI Integration Dev.*

Ibrica Tutic – *Project Manager*

Nicholas Lorenz – *Quality/Performance Analyst*

- **Weekly Summary**
  Worked more on the algorithm needed to enable V2X communication to ensure high reliability and throughput; also spoke more with the professor to get more details on how to implement the algorithm. We also spent some time on getting the UEs/eNBS to communicate which seemed to work, but would only support one eNB with single/many UEs. The EPC is needed to get the eNBs communicating, but there are some issues with the configuration files that are causing it to hang on boot. Will spend more time this week contacting OAI to see if somebody might know what is wrong with our configuration files.

- **Summary of Weekly Advisor Meeting**
  Team reviewed priorities with advisor for final stretch of semester. Top priorities are implementing the algorithm, and running a simulation using the SUMO data. The team is working on a way to get in touch with the OAI devs to try and get the simulations up and running. The algorithm is going to be reviewed with our advisor.

- **Past week accomplishments**
  - **Ibro:** Worked more on eNB/UE communication. Continued investigating EPC issues and debugged problems with starting the EPC. Seems like it might be a configuration issue.
  - **Will:** Finished reviewing base algorithms. Created rough preliminary design document.
  - **Nathan:** Worked on using Cinder to create a 2D GUI to show where eNBs and UEs are currently located in the system.
  - **Sam: F**inished porting over and building other necessary sumo files in OAI. Started trying to run tests
  - **Drew:** Looked at algo. Structure and different OAI versions.
  - **Nick:** Individual did not report their accomplishments for the reporting period.

- **Pending issues**
  - Virus outbreak is causing a lot of change, requiring adaptation and evaluation of resources.

- **Individual contributions**

Name	Individual Contributions	Hours this period	Hours cumulative
Andrew Eschweiler	Looked at algo. Structure and different OAI versions.	5	83
William Byers	Finished basic algorithm preliminary design	13	125
Nathan Whitcome	Spent time getting Cinder working and messed with getting it to draw shapes that change position over time.	9	100
Samuel Stanek	**F**inished porting over and building other necessary sumo files in OAI. Started trying to run tests	9	115
Ibrica Tutic	Dry run of UE/eNB communication completed, EPC installed and config files created. Debugging EPC issues to get eNB and EPC to communicate.	9	161
Nicholas Lorenz	Individual did not report their contributions for the reporting period.	??	68

- **Comments and Extended Discussion**

  Lots of problems trying to start the EPC. Most guides on the EPC side of things are built for an older version of the EPC, so there are some differences in requirements. Configuration files were verified and seem to be ok, aside from missing some carrier settings (unique ID, country code, etc).

- **Plans for the Upcoming Period**
  - **All:**
  - **Ibro:** Continue working on getting EPC going, start on moving over the Jenkins server to the new system provided by the ETG. Going to spend some time emailing the OAI mailing list to see if anybody has experience with setting up the newer version of the EPC.
  - **Will:** Meet with advisor and go over algorithm preliminary design. Fianlize location of algorithm in OAI and begin implementation.
  - **Sam:** Continue testing the sumo files that have been ported over, work on merging my test files/branch with the groups branch
  - **Nathan:** Communicate with Ibrica and Will to see if they know where in OAI we would want to send the data from Sam's program. Work on integrating that into the system, even if we can't really test it. Combine Sam's socket program with the Cinder GUI program and get it to draw shapes based on information from SUMO.
  - **Drew:** Look at Ibro's build, look at and understand the requirements of our new platform Cloudlab.
  - **Nick:** Individual did not report their plans for the upcoming reporting period.